AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (original) A method of combinatorial multimodal optimisation for finding multiple optimal ways of dividing a set *W* of *n* values into *m* groups, such that each of the groups satisfies a respective constraint condition, the method comprising:

(a) defining an initial population of individuals, each representative of a trial solution;

(b) calculating for each individual a fitness vector indicative of whether the constraint condition for each group has been satisfied;

(c) selecting a plurality of individuals for the next generation in dependence upon their respective fitness vectors;

(d) creating a new population including the selected individuals; and

(e) repeating steps (b) to (d) until the population stabilizes, the individuals of the stable population representing multiple optional ways of dividing the set *W*.

2. (original) A method as claimed in claim 1 in which the fitness vector is of length *m,* each element in the fitness vector being indicative of whether the constraint condition of a corresponding one of the *m* groups has been satisfied.

3. (original) A method as claimed in claim 2 in which the fitness vector comprises *m* bits, each bit being indicative of whether the constraint condition of a corresponding one of the *m* groups has been satisfied.

4. (original) A method as claimed in claim 1 including calculating a fitness value for each individual.

5. (currently amended) A method as claimed in ~~claim 4 when dependent upon~~ claim 3 including calculating a fitness value for each individual in which the fitness value comprises the sum of the bits in the fitness vector.

6. (currently amended) A method as claimed in ~~any one of the preceding claims~~ claim 1 including reserving a proportion of the new population for individuals selected at step (c).

7. (original) A method as claimed 6 in which a non-reserved proportion of the new population is generated using a Roulette wheel selection method.

8. (currently amended) A method as claimed in ~~any one of the preceding claims~~ claim 1 in which step (c) comprises selecting non-dominated individuals using the criteria of Pareto optimality.

9. (currently amended) A method as claimed ~~in claim 8 when dependent upon~~ claim 4 in which step (c) comprises selecting non-dominated individuals using the criteria of Pareto optimality including ranking non-dominated individuals by fitness value, and selecting from the ranked list.

10. (original A method as claimed in claim 9 in which only non-dominated individuals with greatest fitness value may be selected at step (c).

11. (original) A method as claimed in claim 4 in which step (c) comprises selecting individuals in dependence upon both their respective fitness vectors and their respective fitness values.

12. (currently amended) A method as claimed in ~~any one of the preceding claims~~ claim 1 in which crossover and mutation are applied at step (d) to at least some individuals in the new population.

13. (currently amended) A method as claimed in ~~any one of the preceding claims~~ claim 1 in which step (c) comprises selecting no more than one individual for each unique fitness vector.

14. (original) A method of distributing a plurality of tasks between a plurality of devices connected together to form a network, wherein each device has an associated constraint on the amount of tasks that it can perform per unit of time, the method comprising:

(a) generating a plurality of trial solution allocations to form an initial population of allocations;

(b) calculating for each allocation a fitness vector indicative of whether the constraint condition for each device has been satisfied;

(c) selecting a plurality of allocations for inclusion in the next generation of allocations in dependence upon their respective fitness vectors;

(d) creating the next generation of allocations by including the allocations selected in step (c) together with new allocations each of which is formed from a combination of two or more of the allocations selected in step (c);

(e) repeating steps (b) to (d) until the population stabilizes; and

(f) allocating the tasks among the devices according to one of the allocations included in the stabilized population.

15. (original) A method as claimed in claim 14 wherein the devices are processors within a multi-processor computer system.

16. (currently amended) A method as claimed in ~~either of claims 14 or 15~~ claim 14 wherein the devices are computers within a computer network.

17. (original) A method as claimed in claim 14 wherein the devices are routers and the tasks are estimated volumes of traffic to be routed through the routers within a data network, and wherein the allocations are used to form a routing strategy.

18. (currently amended) A method as claimed in ~~any one of claims 14 to 17~~ claim 14 in which step (c) comprises selecting non-dominated allocations using the criteria of Pareto optimality of the associated fitness vectors.

19. (currently amended) A method as claimed in ~~any one of the preceding claims~~ claim 1 in which new allocations are formed in step (d) by performing crossover operations in respect of groups of two or more of the allocations selected in step (c).

20. (currently amended) A method as claimed in ~~any of claims 14 to 19~~ claim 14 in which mutation operations are applied to one or more of the new allocations formed in step (d) according to a predetermined probability of each new allocation being mutated.

21. (currently amended) A computer program for carrying out the steps of ~~any one of the preceding claims~~ claim 1.

22. (original) A carrier medium carrying the computer program of claim 21.

23. (original) A system comprising a plurality of devices connected together to form a network, wherein each device has an associated constraint on the amount of tasks that it can perform per unit of time, the system including means for allocating a plurality of tasks among the devices, the allocation means comprising:

(a) means for generating a plurality of trial solution allocations to form an initial population of allocations;

(b) means for calculating for each allocation a fitness vector indicative of whether the constraint condition for each device has been satisfied;

(c) means for selecting a plurality of allocations for inclusion in the next generation of allocations in dependence upon their respective fitness vectors;

(d) means for creating the next generation of allocations by including the allocations selected in step (c) together with new allocations each of which is formed from a combination of two or more of the allocations selected in step (c);

(e) means for repeating steps (b) to (d) until the population stabilizes; and

(f) means for allocating the tasks among the devices according to one of the allocations included in the stabilized population.